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A simple guide to diagnose heart failure with preserved ejection fraction: A consensus recommendation from the Malaysian HFpEF Working Group (MY-HPWG)

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Background

Globally, prevalence of heart failure with preserved ejection fraction (HFpEF) has been increasing. Similar trend was observed in Asia. However, HFpEF diagnosis remained challenging especially in low-to-middle income Asian countries due to lack of access to diagnostic tools.

Objective

A simplified diagnostic algorithm was proposed to improve the diagnostic rate of patients at risk of HFpEF, by facilitating early diagnosis at primary and secondary healthcare settings, and to encourage early referral of patients suspected of HFpEF to tertiary facilities.

Materials & methods

Malaysian HFpEF Working Group (MY-HPWG) consisted of 10 experts was formed to improve management of HFpEF patients in Malaysia. Clinical evidences on the management of HFpEF with the focus on diagnosis was gathered and reviewed, in order to develop a simplified algorithm to guide HFpEF diagnosis across different healthcare levels.

Results

Five recommendation statements below were proposed with an accompanying simplified HFpEF diagnostic algorithm being developed.

Recommendation 1: Recognizing heart failure in high-risk patients. Patients with risk factors presenting with signs and/or symptoms of HF should undergo a detailed medical history review and physical examination to ascertain their risk of HF.

Recommendation 2: Essential initial investigations. Patients suspected of having HF should undergo a standard set of assessments, comprising chest X-ray (CXR), electrocardiogram (ECG) and laboratory tests, to establish a provisional diagnosis of HF.

Recommendation 3: Combining natriuretic peptide and echocardiography to support the diagnosis of heart failure. Patients suspected of HF should proceed to additional investigations to confirm their diagnosis with NP measurement and ECHO examination.

Recommendation 4: Confirming the diagnosis of heart failure with preserved ejection fraction. Patients with uncertain HFpEF diagnosis should be referred to tertiary care for standard/comprehensive echocardiography and/or further investigations.

Recommendation 5: Timely referral and intervention. Patients with HFpEF and multiple comorbidities, non-responders to treatment, or those in need of specialized/multidisciplinary care should be referred to tertiary care for optimal management.

Conclusion

HFpEF is a heterogenous disease with complex diagnosis, which often led to under- and mis-diagnosis. The simplified HFpEF diagnostic algorithm which relies on the more easily accessible and non-invasive tools is recommended to improve HFpEF diagnosis.

doi:10.1016/j.ijcard.2022.10.103

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Booster COVID-19 vaccine comirnaty ignite supraventricular tachycardia in Wolff Parkinson White Syndrome

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Background

Pfizer-BioNTech COVID-19 Vaccine which marketed as Comirnaty is the first approval of COVID-19 vaccine in year 2021 by National Pharmaceutical Regulatory Agency (NPRA) Malaysia and booster dose of vaccine is advocated to increase the immunity protection from severe disease of COVID-19 variant. Likewise other medicine, vaccine may cause side effects known as adverse event following immunisation (AEFI). Myocarditis or pericarditis is a known adverse events of special interest (AESI) in clinical trials but it is very rare side effects of Comirnaty vaccine. Symptom of palpitations is regarded as AEFI which required further work out for myocarditis.

Objective

N/A

Materials & methods

N/A

Results

A 43 years old midwife presented to emergency department with sudden onset of palpitation at rest which occurred 25 h after taken booster dose of Comirnaty. Supraventricular tachycardia (SVT) was seen on cardiac monitor with heart rate of 240 which failed with trial of conventional carotid massage. It was reverted to sinus tachycardia with heart rate of 110 after intravenous adenosine 6 mg was administered. Electrocardiogram performed revealed short PR interval with delta wave seen. Thyroid function test sent was normal. Echocardiogram done showed good left ventricular ejection fraction of 61% and no structural abnormality. 24 h Holter monitoring showed spontaneous reverted SVT with heart rate of 134 at 9.30 am. There was no similar symptoms presented after the first 2 doses of Comirnaty vaccine taken. She experience subtle symptoms of palpitation at times prior to administration of COVID-19 vaccine which resolved after rest. She went through uneventful vaginal delivery of her 2 kids without SVT triggered previously. Electrophysiology study was performed revealed postero-septal Wolff Parkinson White Syndrome (WPW) and radiofrequency ablation was done successfully. She remained asymptomatic after the ablation therapy.

Conclusions

There are limited available data in the literature reporting SVT triggered by mRNA vaccine of Comirnaty in WPW. The pathologic palpitations cases reported were associated with myocarditis in the

receiver of Comirnaty vaccine. This untoward SVT occurrence that follows the administration of vaccine may not causally related to the vaccine itself, it might be triggered in the pre-existing WPW.

doi:[10.1016/j.ijcard.2022.10.104](https://doi.org/10.1016/j.ijcard.2022.10.104)

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COVID-19 vaccination and myocardial infarction

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Background

A young man was admitted for acute inferior myocardial infarction after receiving the booster dose of mRNA COVID-19 vaccination

Objective

This case illustrates the possible association between mRNA COVID-19 vaccination and acute myocardial infarction in a young patient

Description of The Case: A 36 years old gentleman who is an active smoker with no known comorbid presented with acute inferoposterior ST elevation myocardial infarction (STEMI) with right ventricular involvement. He completed 2 doses of Sinovac COVID-19 vaccine 4 months ago and recently had the booster dose of Pfizer-BioNtech COVID-19 vaccine 9 days prior to chest pain onset. Upon arrival to hospital, his vital signs were stable and he was treated successfully with thrombolytic therapy. Coronary angiogram was done the next day which showed heavy burden of thrombus at the right coronary artery. He was given intracoronary tirofiban during the procedure and was planned for medical therapy which consists of aspirin, clopidogrel, atorvastatin, bisoprolol and subcutaneous fondaparinux for 1 week. Repeated coronary angiogram 1 week later showed resolution of the thrombus at the culprit artery. There was no significant stenosis at all coronary arteries. Echocardiogram showed impaired left ventricular ejection fraction of 35% and hypokinesia at inferior and inferoseptal wall. There was no left ventricular thrombus. Patient was discharged well with guideline directed medical therapy for acute coronary syndrome.

Conclusion

Cardiovascular complications post mRNA COVID-19 vaccine were reported worldwide. From literature review, the most common adverse effect are myocarditis and pericarditis. Myocardial infarction due to coronary artery thrombosis post vaccination is less commonly reported. Nevertheless, the incidence of complications from COVID-19 infection are much higher than the adverse effects of COVID-19 vaccination. Therefore, vaccination is still the best strategy in reducing mortality rate during COVID-19 pandemic. Physician should be familiar with the potential adverse effect of vaccination and the management.

doi:[10.1016/j.ijcard.2022.10.105](https://doi.org/10.1016/j.ijcard.2022.10.105)

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Pericardial Empyema – TB or not TB?

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Introduction

Tuberculous Pericarditis frequently results in long term complications such as constrictive pericarditis and increased mortality for patients. A high index of clinical suspicion is required and prompt treatment is needed to ensure the best possible outcome for patients.

Case report

A 58 year old Iban gentleman was admitted to our hospital with complaints of chest discomfort that had gradually worsened over a course of three days. He had also been suffering from intermittent fever and shortness of breath for a few months. His past medical history was only notable for hypertension.

On examination, he appeared breathless. His blood pressure was 88/67, with a heart rate of 89 bpm and he was afebrile. Respiratory rate was at 26 breaths per minute with oxygen saturation of 99% in ambient air. His physical examination revealed distended neck veins and muffled heart sounds. A chest radiograph showed cardiomegaly.

After admission to the ward, the patient was persistently febrile and hypotensive. An echocardiogram was arranged and demonstrated a circumferential pericardial effusion measuring 2–3 cm with multiple fibrin within and a right atrial mass. A CTNAP was further performed that showed an enhancing pericardial effusion with septations causing significant mass effect onto the heart. The CT also revealed a right atrium central filling defect suggestive of a thrombus and bilateral patchy lung consolidations.

Antibiotics and anti-tuberculous treatment with steroids was initiated and a pericardial drain was placed which demonstrated pus. The patient was counselled for transfer to the nearest cardiac center for further management but he declined.

Direct smear from the pericardial fluid revealed AFB. TB PCR was positive for *Mycobacterium Tuberculosis* Complex. Bacterial culture of the pericardial fluid were negative and antibiotics were discontinued. Unfortunately, the course of his hospitalization was complicated with drug induced hepatitis and nosocomial pneumonia leading to his eventual demise.

Discussion

Clinicians should maintain a high index of suspicion for TB pericarditis in endemic areas as early treatment improves prognosis. The mainstay of treatment is antituberculous medication with administration of corticosteroids. Pericardiectomy is indicated if constrictive pericarditis is persistent.

doi:[10.1016/j.ijcard.2022.10.106](https://doi.org/10.1016/j.ijcard.2022.10.106)